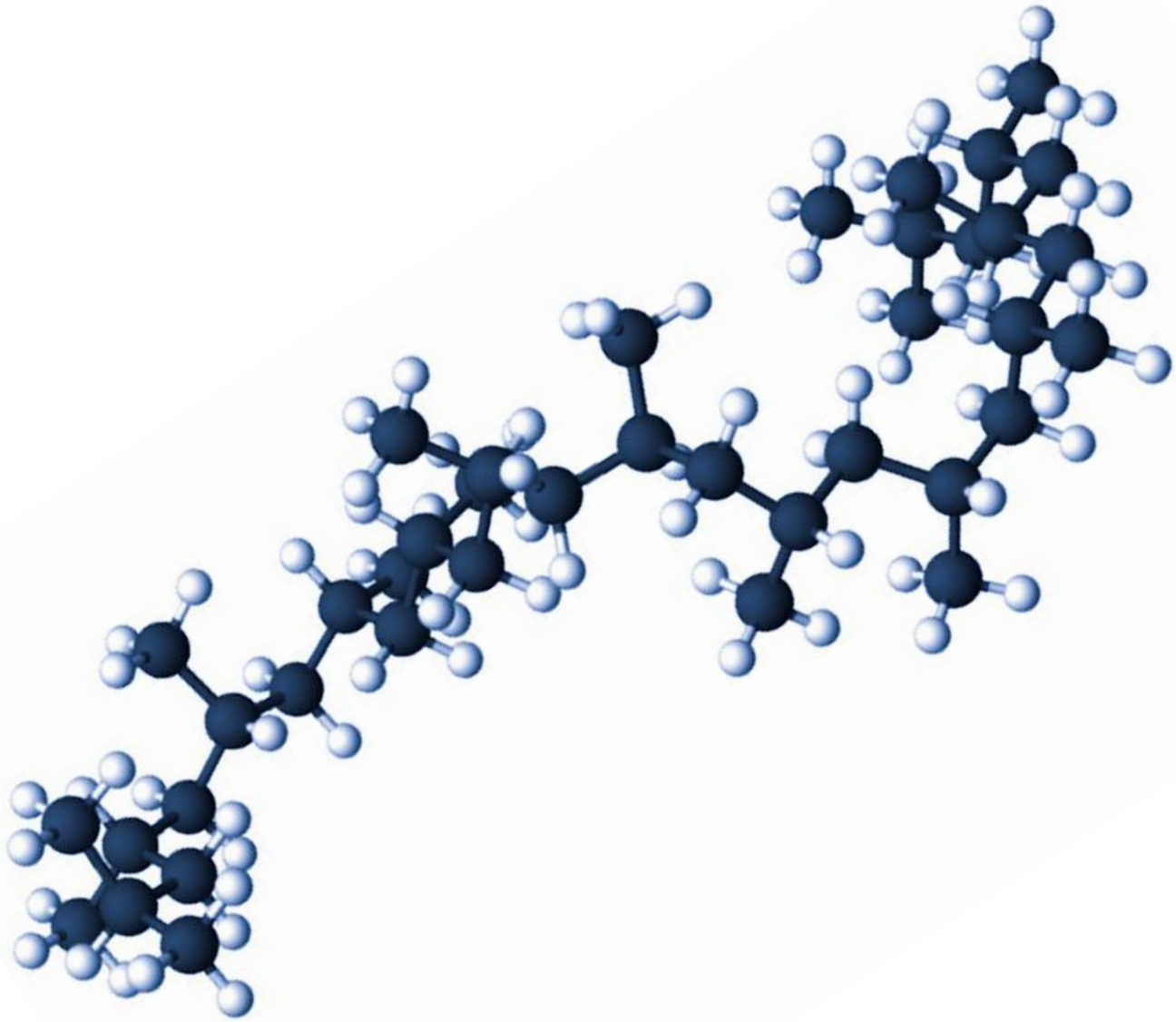
POLIMERY POLICE PROJECT
NON-TECHNICAL SUMMARY



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WHAT IS THE POLIMERY POLICE PROJECT?

Grupa Azoty S.A. ("Grupa Azoty") together with Grupa Azoty Zakłady Chemiczne „Police" S.A. („GAP") is planning a project called "Construction of the Police Polymer Complex, consisting of PDH (propylene dehydrogenation) Plant, PP (polypropylene) Plant, PP logistics infrastructure, auxiliary units and inter-connections as well as a handling and storage terminal" (further the Project). The main objectives of the Project are:

- Creating base for further development for Grupa Azoty;
- Establishment of a new production segment within Grupa Azoty;
- Utilization of existing synergies with other chemical sites of Grupa Azoty;
- Diversification of production portfolio within Grupa Azoty, and
- Effective utilization of valuable by-products.

The Project technologically will consists of two phases: production of propylene from propane and then production of PP from propylene - which is supposed to be the final product although propylene can optionally be sold as a product. Polypropylene is an organic chemical compound which has various practical uses for modern society. It is used in different industry branches, such as chemical, pharmaceutical, textile, food industry and packaging, electronics, automotive and others. Possibility to modify polypropylene using nanotechnology allows for the development of innovative types of plastics with a rich spectrum of properties. In connection with the above, a wide range of polypropylene types is offered on the market.

Polypropylene is manufactured in the polymerization process of propylene, which is the second (after ethylene) basic compound in the petrochemical industry. The most commonly propylene is produced worldwide as a by-product of oil refining and natural gas processing. The Project will utilize technology known as propane dehydrogenization where the hydrogen atoms are removed from propane molecule.

All planned units and objects will be located at the area owned and operated by the Company in the neighborhood of the existing facilities of GAP.

The Project will be developed taking into account necessary measures to create a safe working environment for all employees. Trainings and specific health and safety instruction for workstations are secured by the Labor Code as well as the integrated management system.

As assessed in the EIA Report[1], the facility will not create adverse environmental impact to the communities' health and safety. The Project will also not impact on legally protected and internationally recognized areas of biodiversity value.

In accordance with the Environmental Protection Law (Journal of Laws of 2018, item 799, consolidated text), the technology used in newly commissioned installations should meet the requirements specified in Article 143 of the above-mentioned Act. Therefore the proposed technology is based on the use of substances with a lower hazard potential than other available ones, and is one of the most modern in the world, which is the result of scientific and technical progress in this field.

This innovative solution allows the effective usage of the energy, proper waste, raw material and water management, as well as minimal emissions, that will not impact current environmental balance and exceed established international and national standards.

[1] Ocena o oddziaływania na środowisko dla zaktualizowanego przedsięwzięcia „Budowa Kompleksu Polimery Police, składającego się z instalacji PDH, instalacji PP, infrastruktury logistycznej PP, instalacji pomocniczych i połączeń międzyobiektowych oraz terminala przeładunkowo-magazynowego. Wersja 03 z 30.07.2018r (in Polish), Multiconsult, 2018.

WHO IS THE PROJECT INVESTOR?

The Project was commenced on September 24, 2015 when Grupa Azoty Zakłady Chemiczne "Police" S.A. created special purpose vehicle (SPV) PDH Polska S.A. (since October 2019 under the name of Grupa Azoty Polyolefins S.A., further also the Company) to meet the demand of the polymer market and to create synergy with the existing fertilizer production plant.

The name PDH comes from English "Propane DeHydrogenation". This method of the production will be used in the facility.

Grupa Azoty Polyolefins S.A. has share and fully paid-up capital registered with the amount of PLN 467 339 000. Grupa Azoty Zakłady Chemiczne "Police" S.A. and Grupa Azoty S.A. are the only shareholders in the newly created subsidiary.

The Company has not reached its final capital structure yet, however, its current structure is adequate for the status of Project development.

Management:

Niewiński Andrzej	Chairman of the board
Czyż Marek	Vice Chairman of the board
Madej Władysław	Vice Chairman of the board

LEGISLATIVE CONTEXT OF THE PROJECT

The most relevant environmental EU standards are implemented into the Polish legal framework by the Environment Protection Act (EPA), Waste Act, Water Law Act, Act on Environmental Information Disclosure and Environmental Impact Assessments (EIA Act), Nature Protection Act and others. All of these acts adopt certain EU directives (national implementation of EU acts can be checked at https://eur-lex.europa.eu/).

A development of most of the industrial projects in Poland is conducted in the following stages (designing and other associated works are not discussed here):

- If existing local zoning plan (a legal act of local range which defines conditions and constraints for spatial planning in certain areas) does not allow for a certain type of developments, the plan must be changed to allow such developments. Without the plan being changed the development is not possible. But if the does not exist then the development requires an individual decision on land development and development conditions issued by the competent local authorities. For most of the projects the authority competent to establish the local zoning plans or issue an individual development decision is the local (commune) authority.
- For projects for which EIA is obligatory or may be required upon discretion of the authorities (an indicative list of such projects is provided in an executive order of the Minister of Environment; the list follows the EU EIA regulations), an EIA procedure is undertaken which is finalized with issue of environmental decision (decision on environmental conditions, which among others imposes requirements that must be taken into account by the construction designs and other environmental obligations for the development).
- Based on the building design assessed by the construction authorities, among others, for development compliance with environmental decision a construction permit is issued based on application of the investor. The investor is free in taking decision whether the development will be developed in phases and whether the

whole investment is covered by environmental decision or just a part of it is to be developed. Since November 2008, another EIA assessment may be required by the competent authorities in certain circumstances, such as e.g. design noncompliance with the environmental decision, i.e. likely to generate more adverse impacts than analyzed at the EIA stage.

- Upon request of the investor, the issued construction permit can be amended, however, any request for such amendment is subject to assessment of compliance with the building law, environmental decision and others.

Please note that unlike in some other European countries the EIA procedure in Poland is conducted separately from the construction permit procedure. If an environmental decision is required and issued it shall be attached to the application for the construction permit. The building authorities will then verify, whether the solutions adopted by a design are in line with the provisions of the environmental decision, hence, the project assessment versus environmental requirements is conducted twice.

For the projects which fall under EU Industrial Emission (IED) Directive requirements Polish procedures also require the assessment versus the Directive and if applicable also BAT conclusions and respective BREFs to be conducted twice. The first time, the assessment shall be done at the stage of the EIA assessment. The EIA Act requires a priori an assessment of the planned technology against the low-emission technology, which in case of the projects falling under the IED Directive is equivalent to the BAT conclusions and BREF. Further, such projects require an appropriate environmental permit, in most cases an integrated permit (IPPC Permit). An application for such permit shall also present information about the ability of an installation to meet the best available techniques, hence assessment of the compliance with BAT. New projects which do not fulfill BREF criteria will not be granted the IPPC Permit, hence will not be allowed to operate.

The propylene production unit and related infrastructure part of the Project passed a national EIA (environmental impact assessment) procedure and was granted environmental decision already in 2017. The EIA procedure was conducted in line with Polish legal requirements by the competent authorities (the Regional Director of Environment Protection in Szczecin) and was finalized on September 8, 2017 with an issue of the relevant environmental decision (WONS-OŚ.4211.9.2015 AT.26), for the beneficiary of the Grupa Azoty S.A. This decision became final and binding on October 16th, 2017, granting the Company the right to build the facilities required for the production.

Later on the Company decided to expand the Project's scope by a polypropylene production unit and necessary auxiliary interconnections and arrangements of the handling/storage terminal (gas port). Consequently, a new EIA Report was prepared and an application for an update of the already issued decision was submitted to the competent authorities on July 31, 2018. This full scope EIA procedure was completed on January 31, 2019 with a decision amending the original environmental decision (WONSOŚ.420.49.2018.AW.26) to cover the entire Project. After the 30-days long consultation period during which no reservations were submitted, the environmental decision become binding and ultimate.

Given that the Project can be further developed, i.e. the construction design can be prepared and submitted to the building authorities along with the application for the construction permit. At this stage the relevant authorities will assess the design against the environmental decision and as described above may require additional EIA procedure in certain circumstances.

PROJECT LOCATION

The Project adjoins the existing Azoty Group owned Grupa Azoty Zakłady Chemiczne Police (further referred to as "Police plant"). This is an existing large fertilizer and titanium dioxide plant.

The site is located in Zachodniopomorskie Voivodeship, Police town, north-western Poland (see Figure 1). The Project will bbe developed on land owned by of Police plants which currently are unused for any technological purposes. The shipping and storage terminal will be developed next to the Police harbour. Although two technological variants were considered at the stage of the EIA, the general land use by both of them is very much similar (see Figure 2).

The facility is not situated within any nature protection area, however it is surrounded by Natura 2000 areas from every direction: directly to the south SAC (special area of conservation) area "Kanały Polickie" (PLH320015 - bats), directly to the east and north SAC "Ujście Odry i Zalew Szczeciński" (PLH320018) and SPA (special protection area) "Zalew Szczeciński" (PLB320009), 4 km to the west SPA "Ostoja Wkrzańska" (PLB320014). Location of the nearest protected areas is presented on Figure 3.

The Police area is densely covered with forests (about 49.9% - about 12.5 thousand ha) with the largest complex of Wkrzańska Forest in its southern part. A distinctive component of the surrounding area is also the hydrographic network of the Odra, Gunica and its tributaries and Lake Świdwie.

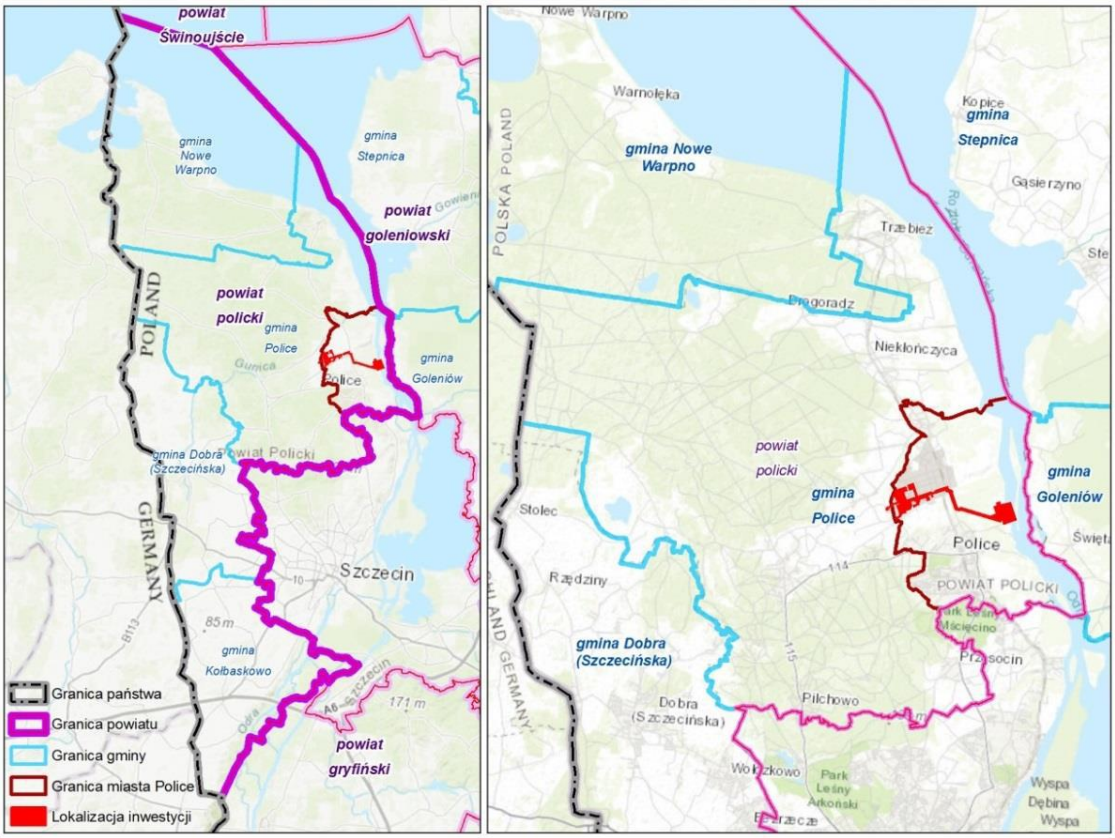

Figure 1. Location of the planned facility (*source: Environmental Impact Assessment Report prepared by Multiconsult, 2018*)

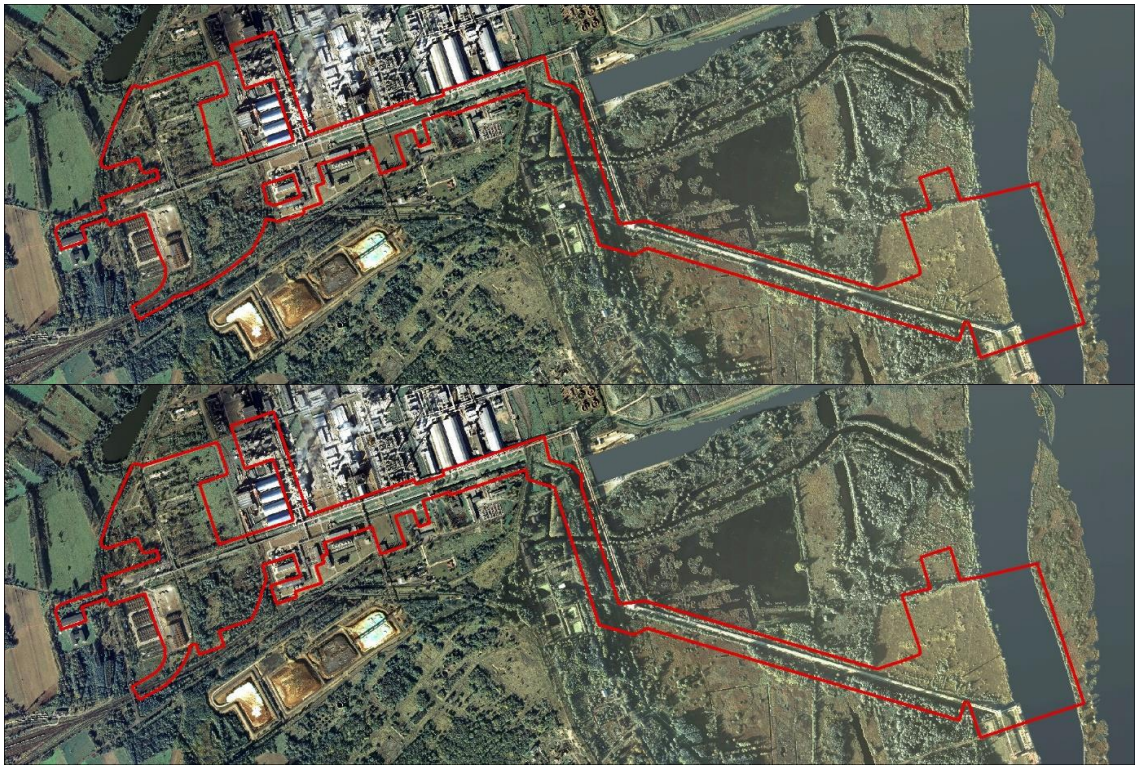

Figure 2. . Location of the considered technological alternatives (*source: Environmental Impact Assessment Report, Multiconsult, 2018*)

Figure 3. The nearest located nature protection areas. (*Source: Geoserwis - Website of the General Inspectorate of Environment Protection available at http://geoserwis.gdos.gov.pl/mapy*).

HOW POLYPROPYLENE WILL BE MANUFACTURED?

The adopted polypropylene manufacturing is technologically a two-step process which, along with supporting operations is presented in the below figure.

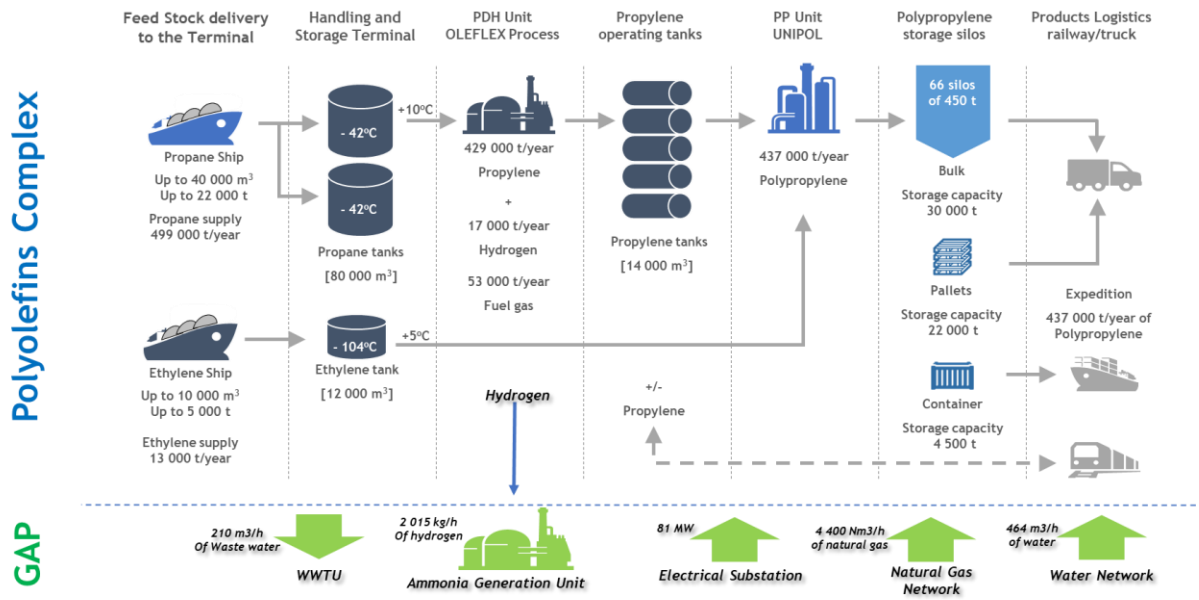

Figure 4. PDH unit for polypropylene production (source: Grupa Azoty Polyolefins S.A.)

PDH Unit for propylene production

The newly built site will use Oleflex® technology based on the Universal Oil Products, owned by Honeywell Company, license. The method is intended for the production of polymer-grade propylene. This technology provides for other methods available on the market:

- low operating costs due to low consumption of raw materials and low energy consumption;
- low investment costs due to the use of a highly active and stable components;
- high installation reliability thanks to modern construction solutions and catalyst regeneration possibilities without stopping the propylene production process;
- low impact on the environment.

Figure 5. Example of propylene manufacturing unit (*source: https://www.lyondellbasell.com/en/news-events/media-kit/*)

The process of propylene production using Oleflex® technology includes four main sections:

- a reactor section;
- a continuous catalyst regeneration section;
- a compression and recovery section of the product;
- fractionation section.

PP unit for polypropylene production

For the second process the site will use Grace's UNIPOL technology. It is based on gas phase polymerization and provides a simple and economical way to manufacture a wide

range of high quality polypropylene grades. The universality of this process is clearly demonstrated by the ease of control, low investment and operating costs as well as the possibility of obtaining a full range of standard polypropylenes, as well as many unique, special products.

The production process of propylene production using the chosen methodology includes four main sections:

- purification and preparation of monomers, catalysts and additives used in the polypropylene production process;
- polymerization of monomers - depending on the technology may take place in the liquid or gas phase;
- recovery of unreacted monomer and deactivation (neutralization) of the remaining catalyst and co-catalyst;
- extrusion of the finished product and its stabilization and modification (functional additives).

Figure 6. Example of polypropylene unit utilizing Unipol technology (*source: https://grace.com/en-us/capabilities/process-licensing*)

HOW THE PROJECT WILL IMPACT THE NATURAL ENVIRONMENT?

The environmental impacts generated at the construction, operation and dismantling stages were widely analysed in the EIA report prepared by Multiconsult and additional study on impact on Natura 2000 areas[2]. The planned investment, despite being close and adjacent to a few Natura 2000 sites, will not affect the coherence and integrity of the Natura 2000 network. It has been shown in the field studies and the analysis the existing infrastructure will not disturb the functioning of the ecological corridor and will not have a limiting effect on environment.

<u>Impact during the construction phase:</u>

1) Fauna (animals):
   - invertebrate fauna of the Odra river – no protected species were found; periodically, in the place of use, removed organisms can re-settle through their migration from adjacent areas;
   - invertebrate fauna of the land parts – periodically the rupture of the topsoil and compaction of the ground with heavy equipment will directly destroy the habitats of invertebrates and reduce their populations in this area;
   - fish species – short-term effects of dredging works;

[2] Budowa Kompleksu Polimery Police, składającego się z instalacji PDH, instalacji PP, infrastruktury logistycznej PP, instalacji pomocniczych i połączeń międzyobiektowych oraz terminala przeładunkowo-magazynowego. Opracowanie w zakresie oceny wpływu przedsięwzięcia na obszary Natura 2000. Wersja 05.11.2019/02 (in Polish), Multiconsult, 2019

- bird species – significant impacts of the planned project on breeding birds are not expected, logging at the area of the storage and shipment terminal was already completed;
- amphibians and reptiles –most species will probably move to another location (short and medium-term impact);
- mammals – planned investment does not pose any threat to the sustainability and condition of the population of those species in the vicinity of the facility.

2) Flora (plants & fungi):
At the construction stage fungi's and, plants' natural habitats will be depleted. However, due to the strong transformation of the studied area (poorly in species and not diverse), this should not be considered in the aspect of losing its natural values.

3) Water:
The area will require drainage to avoid an increase in the level of groundwater and inflow of rainwater to excavations. Due to the fact that the dehydration will be short term, it will not affect ground-water relations.

Planned dredging works and those related to the construction of the wharf within the reloading terminal will affect Police Channel locally to a moderate extent. They will also impact groundwater, however, it will be local and short-lasting and will disappear after completion of the investment, with no significant effect.

4) Soil & landscape:
The majority of the planned investment was designed in the area of the existing plant, the anthropologically changed area, there will be no interference in natural areas. Earthworks carried out during construction will interfere with both the morphology of the terrain and the shallower ground surface layers up to several meters below the ground level. Impacts at the construction stage can generally be described as long-term, because changes in soil structure are permanent and actually irreversible. However, their significance is small in the natural sense, because for the most part it concerns land already heavily transformed.

The impact on the landscape and climate will be short and will be directly related to construction works - transport of machines and vehicles and the location of the construction site.

5) Air:
In the construction phase of the planned Polimery Police complex, the following air emissions will occur:
    - emission of fuel combustion products (diesel oil) in engines of construction machines;
    - secondary dusting as a result of vehicle traffic in the area covered by construction works;
    - dusting due to the movement of earth masses, cement and building aggregates.

Periodically mentioned emissions can be annoying but taking into account the transient nature of construction works, it should be considered that this stage will not cause permanent negative changes in the environment.

6) Noise:
The local deterioration of the acoustic climate related to construction works will be temporary, limited to the duration of the works.

7) Waste:
   During this phase the waste will be created by construction companies and it will be disposed of by the vendors.

8) Electromagnetic radiation:
   At the current stage of the investment process, no executive entities are known and the extent to which individual elements of the project will be implemented, however, each contractor for construction and assembly works will have to meet the requirements resulting from the applicable regulations.

<u>Impact during the exploitation phase:</u>

1) Fauna (animals):
   - invertebrate fauna of the Odra river –planned exploitation of the channel is unlikely to contribute to the deterioration of the organisms, as the Police Harbor is already in this area and its impact may be similar to that caused by the planned marina;
   - invertebrate fauna of the land parts – most of the habitats will regenerate after some time, especially since most of the area is already anthropogenic and only common species have been found;
   - fish species – harmful impact should be considered insignificant;
   - birds species – avifauna's movements between two important ecologically curtail areas located nearby (Natura 2000) were spotted; although, in current shape no impact on birds species was discovered (due to site location) this may change dynamically depending on ice cover on Szczecin Lagoon and Lake Dąbie;
   - amphibians and reptiles – significant impacts are not expected as there is little variety and low density of habitats in the area of the investment;
   - mammals – planned investment does not pose any threat to the sustainability and condition of the population of those species in the vicinity of the facility.

2) Flora (plants & fungi):
   After the construction is completed the destroyed biota should spontaneously rebuild. Biological diversity should therefore remain at a relatively stable level. However, colonization of new habitats will be based on synanthropic (ecologically associated with humans) species.

3) Water:
   Water demand of the planned investment can be covered by the GAP and are within the limits stipulated by the current integrated permit of GAP. It is assumed that the quantity and quality of discharged wastewater from the Project area will not exceed the permissible values specified. Wastewater streams will be discharged to GAP sewer networks and wastewater treatment plants.

   To minimize impact on surface water the maintenance works in the channel will be executed in a three years long or longer intervals.

4) Soil and landscape:
   Generally, at the stage of operation, the impact on soil is not likely to occur. Liquid chemicals will be used in limited amounts at the site and secondary containments will be provided to avoid subsurface impact in case of accidental release.

   Project development will not generate adverse impact on the landscape, all production facilities will be located at the already changed, industrial area. The new harbor will be developed adjacent to the existing one, hence no significant visual dominants will be introduced.

5) Air:
Based on the analysis of available data on the planned Polimery Police Complex, the following sources of air emissions in the operational phase were identified:

- installation of propylene production with infrastructure;
- installation of polypropylene production with infrastructure;
- reloading and storage terminal;
- internal combustion engines.

The modeling of air pollutants dispersion, in a cumulative approach (i.e. taking into account the existing emission sources of GAP) revealed that the operation of the Project will not cause any breaches of ambient air quality standards.

6) Noise:
The emission of noise to the environment will occur as a result of operation of numerous stationary devices of the production units, such as pumps, compressors, fans, gas launchers and others. These will contribute in the overall emission of noise of GAP. Noise emission will last around the clock. Based on the noise distribution modeling, the operation of the Project will not cause any breaches of the noise standards at the protected (residential) areas. However, operation of the GAP already causes excessive noise level at some residential areas. The mitigation plan adopted by GAP is aimed at reduction of the noise impact and the operation of the Project will fit the plan objectives and mitigation measures.

7) Waste:
The most of the waste will be reused in the production process or recycled and will not be stored. The other wastes will be temporarily stored in special designated areas and will be transferred off the site be certified companies for final treatment. Manufacturing process of propylene and polypropylene is a low-waste technology, therefore, will not have any significant impact on the environment.

Wastes generated at the harbor will be temporarily stored away from the water bodies in a designated area, inaccessible for unauthorized access. Similarly to technological wastes, these will be transferred off the site for final treatment by the certified waste management contractors.

8) Electromagnetic radiation:
The planned transforming station will be located in the industrial areas. The nearest housing development is located in the village of Tatynia, about 700m west. Excessive negative impact of the electromagnetic radiation is not expected to occur.

9) Carbon emissions
- CO_2 emission from the facility will amount in total 220,247 t/a, which corresponds to 0.364 t/t of propylene, which is low as compared to EU-ETS benchmark of 0.702 t/t of propylene. The selected propylene production technology allows for CO_2 emission lower by approx. 13,622 t/a as compared to alternative technologies.
- hydrogen from the PDH plant will allow a reduction in the natural gas consumption in ammonia plant and in HP Boiler (Auxiliary units), which in turn will be converted into a reduction in CO_2 emissions to the atmosphere by around 113,500 t/a.

The Project includes mitigation for environmental impacts through design and implementation of best practice. Environmental impact are reduced among others by:

- development of the project on the land next to the existing Police industrial chemical plant, impact will be limited to the necessary minimum;
- reduction of CO2 emissions to the atmosphere;
- the reduction of nitric oxide (NOx) emission by 25%;
- possibility to totally mitigate the sulphur oxide (SOx) emission;
- high efficiency of energy system support, primary ratio energy saving forecasted exceeds the level required for high efficiency cogeneration.

WILL THE PROJECT AFFECT BIODIVERSITY?

As indicated earlier in this non-technical summary, an intensive nature surveys were completed for the planned development and a separate assessment of the Project impact on Natura 2000 sites was also completed. The assessment did not identify any significant and non-reversible impact on these sites as well as on flora and fauna species present there. It should be noted here that the EIA procedure completed with the issue of environmental decision for the Project included also assessment of the Project impact on wild nature and protected areas. The procedure confirmed low impact of the Project on habitats, flora and fauna.

In order to confirm or deny findings of the EIA with respect to wild nature and impact on biodiversity, an independent environmental consultant (Ramboll Environ Poland) undertook additional assessment of the Project impact on critical habitats, in line with the provisions of PR 6.

The Project, and in particular dredging of the Police Channel, due to the nature and extent of the construction works and then operations of the Project will not lead to loss, degradation or fragmentation of habitats, introduction of invasive alien species, overexploitation of natural resources, migratory corridors, hydrological changes, nutrient loading into environment, as well as impacts relevant to climate change.

Based on the nature surveys results and characteristics of the nearby Natura 2000 areas, the most sensitive biodiversity features, defined as "critical habitats" are not present in the Project area of influence. The critical habitats comprise:

- highly threatened or unique ecosystems;
- habitats of significant importance to endangered or critically endangered species;
- habitats of significant importance to endemic or geographically restricted species;
- habitats supporting globally significant migratory or congregatory species;
- areas associated with key evolutionary processes; or
- ecological functions that are vital for maintaining the viability of biodiversity features.

Following the PR 6 provisions, some biodiversity features of lower than critical habitats that are particularly irreplaceable or vulnerable are considered priority biodiversity features. In case of the Project such predominantly includes species which are subject of protection of the nearby Natura 2000 sites and are listed either in Annex II to habitats directive or Annex III to birds directive. In the nearby Natura 2000 areas under protection are:

- one invertebrate specie;
- five mouthless fish and fish species;
- seven species of amphibians, reptiles and mammals;
- over 30 species of birds.

Most of these have relatively low status of protection, none with the status of "extinct" or "extinct in the wild". However, among other than birds species:

- Thick shelled river mussel has EN status (endangered),
- European river lamprey has VU status (vulnerable) in the Polish Red Book, and

- Harbor porpoise has CR (critically endangered) status in the Baltic Sea and the same status according to the Polish Red Book.

Due to the fact that these species either were not observed or were rarely observed in the Project area, an overall risk for them has been assessed by the consultant as low and not critical for the population. The overall risk for the birds listed in the Annex III to the birds directive is also assessed as low by the independent consultant, however, as a mitigation measure the construction works should not be undertaken during the nesting season of white-tailed eagle and red kite. The Project area is distant from the nesting areas of the protected birds and their flights were observed mainly on the central and eastern part of the Odra Channel, i.e. distant from the Project site.

Concluding, the Project will not substantially endanger priority biodiversity features, in particular these being subject of protection at the nearby N2000 sites. Therefore the Project is being assessed as compliant with PR 6.

HOW THE PROJECT WILL IMPACT THE SOCIAL ENVIRONMENT?

According to statistical data from the Statistical Office in Szczecin, in 2015, the Police commune had 41,618 people. The area of the commune is 252 km^2, which gives a population density of 165 people per km^2. Police is the dominant municipality in the area. The statistical data, however, indicate also negative migration balance, i.e. that the local emigration prevails over immigration.

The Police plant is the major employer in the area. There are also entities with foreign capital in the commune. However, they do not constitute a large labor market. The percentage of people working in industry in the Police commune is almost twice as high as the percentage of people working in this sector in the whole West Pomeranian Voivodeship. The percentage of people working in services is much smaller comparing to the rest of the Voivodoship. A small share in the economy of the areas determined by degree of product transformation and services section gives little alternative to employees. Therefore, in the scenario of a chemical industry breakdown, unemployment range may increase quickly.

The investment's influence may be seen as an opportunity for the commune development, increase the commune incomes as well as increase the employment opportunities, improving the living standard, migration reduction from this part of Poland, support local field studies, higher education and vocational education, increase of Polish economic importance on the international arena, in addition, revenues to the municipal budget will increase due to local taxes, development of local enterprises, new industries will appear, social expenses will be reduced, new infrastructure will be built, and state revenues will increase due to various taxes. However, the emission of pollutants and potential impact on the health of residents and increased level of risk related to industrial failures may be the negative impacts.

During the construction phase of the Project the social impacts will be very much related to increased traffic due to necessary transport of materials, equipment, building machines, excessive soil and workers. During this phase which is estimated to last at least 31 months the traffic in the direct vicinity of the site, mainly at the road No. 114 but also at local roads in the area, will be significantly more intensive than nowadays and after completion of the construction works. Such increased traffic will generate negative social impacts related to:

- Noise emission;
- Primary (from fuels combustion) and secondary (e.g. dust emission from roads due to movement of trucks and cars) air emissions;

- Increased road accident risk;
- Nuisance to travelers due to increased traffic and possibly also oversize cargo transport, although at this stage the oversize cargo is expected to be delivered mainly by vessels;
- A potential for roads' damages due to intensive heavy transports.

At this stage there is insufficient information available to assess the traffic density during the construction works as well as the exact transportation routes, hence also the number of people exposed to such impacts. The Company, however, has already initiated cooperation with the communes of Szczecin and Police and Police county by signing in October 2018 a letter of intent with respect to cooperation in preparation and maintenance of road infrastructure and road management during construction and then operation of the Project. The possible various access roads to the site were identified, however, a detailed plan for their use has not been developed yet. It shall be noted that the local communes plan a refurbishment of the local roads network during the next five years, which will affect traffic planning for the construction (planned for the years 2020-2022) and operation phases of the Project. Ultimately, the main access road to the site will be the planned western bypass of the city of Szczecin, however, construction of this road will be completed not earlier than in 2023.

Impacts during exploitation phase

During the operational phase the nuisance related to traffic will be significantly lower than during the construction phase. Instead, some benefits for the local economy can be expected, such as:

- the opportunity for the commune development;
- increase of the commune incomes;
- increase of the employment opportunities;
- improvement of the living standard and general well-being of the society;
- reduction of migration from this part of Poland;
- support local field studies, higher education and vocational education;
- increase the importance of Polish economy on the international arena;
- local enterprises will have a chance to develop;
- new industries and infrastructure will be developed.

WILL THE FACILITY MEET THE CURRENT ENVIRONMENTAL TRENDS?

As any other type of manufacturing, production of plastics impacts environment by use of natural resources, emissions to air and water and waste generation. But modern world is not prepared yet for replacement of plastic with other materials of similar properties. Use of plastic products allows for manufacturing of various goods: from plastic packages, through pipelines to coatings and large elements of cars or furniture. Relatively easy production process of various plastics, low production costs and physical properties are drivers of increasing production of different plastics worldwide.

Plastic wastes have negative impact on the environment as a whole. Great amounts of plastic wastes have become a global problem and micro plastics are observed to be present in water, air and living creatures. Current increase of ecological awareness will become an opportunity for all society to fully support the culture of collection and recycling. Previous bad practices related to waste management, consumer littering and lack or low public awareness are the main reasons for the increasing amount of marine waste. The company plans, among others, actively participate in campaigns to increase public awareness of plastics recycling and their responsible use and disposal of final products (collection, sorting and recycling). As a result, any product that is recycled or otherwise processed will

not end up as junk in our environment. This issue is subject to growing awareness of the societies and regulators. In 2018 EU adopted Strategy for Plastics in Circular Economy, which generally speaking is aimed at reduction of plastic wastes generation and better re-use of plastic products. The strategy will obviously affect the way the plastic products are designed, produced and recycled.

Given the nature of the polypropylene, its use in manufacturing of packages which constitutes the main plastic waste stream is relatively limited. Polypropylene has more common use in e.g. car or furniture industry which allows for more effective recycling than other plastics such as PE, PCV or PET commonly used for packaging purposes. Unlike some other types of plastics PP is in vast extent recyclable and reusable.

New regulations generally could be beneficial for polypropylene. Polyolefins are highly privileged compared to products containing chlorine (PVC), styrene (PS) or PET. Among the plastics currently used on the market, polypropylene is the purest polymer material belonging to the group of polyolefins, ie compounds made of carbon and hydrogen molecules. This means that in the case of energy recovery of polypropylene plastic (oxidation of the organic substance), almost complete decomposition to H2O and CO2 occurs. Due to its structural construction and physicochemical properties, polypropylene is a versatile material that characterizes: ease of processing, wide range of usable properties, the possibility of multiple use and recovery. Polypropylene is a wide application material with the largest number of end applications. Grupa Azoty Polyolefins S.A. through the possibility of choosing sectors of the economy and end product markets, to which it will direct its product, will be able to commercialize the offer in a diversified and sustainable manner.

The Project since its very beginning has been developed in a way aiming at minimization of the environmental impacts by selection of the modern propylene and polypropylene production technologies which low environmental footprint. By implementation of the most modern phthalate-free catalyst technology, the Company will actively cooperate with its customers to improve the design of packaging solutions facilitating recycling. Upgraded local waste management, with waste segregation will contribute in reaching European and national municipal waste targets for recycling. Further, the facility's design is based on industry best practice to reach zero plastic spill objective. The zero plastic spill is also a contractual criterion for selection of the Company business partners, including distributors and logistic companies.

This project is consistent to path for climate neutral and circular economy which sets a path to decarbonize plastics throughout their lifecycle is based on 4 major routes: (i) a shift to a circular plastics economy, (ii) the improvement of energy efficiency in the production process, (iii) the decarbonization of the production process, (iv) a partial switch to renewable feedstock.

HOW THE ENVIRONMENTAL AND SOCIAL RISKS WILL BE MANAGED

The environmental and social risks have been of great concern of the Company since the very early stage of the Project development. Therefore, the Project was planned in such a way, to limit potential impacts as far as possible and utilize existing infrastructure in the widest possible extent. The possible synergy with the Police Plant by mean of use the same water and wastewater utilities, energy sources and limitation of emissions by utilization of generated as a byproduct hydrogen at the Police facilities.

It should be stressed that the new investment will be developed on the existing premises of the Police industrial chemical plant and the storage and handling terminal will be adjacent to the exiting harbor. Thanks to this and the application of the most modern technologies the environmental impacts will be limited to the necessary minimum i.e. avoiding excessive pressure on the environment (with measurable scale). Such solution will not significantly increase the impact of existing installations and is consistent with the principle of sustainable development.

During operational phase the Project impact will be continuously controlled by application of the continuous measurement systems of all of the basic process parameters and emissions. The overall performance will be monitored and the continuous improvement will be secured by development, implementation and maintenance of an environmental and social management system (ESMS). The system will be certified.

Due to the amounts and types of chemicals stored and used at the site, a risk of "major accident" as defined by the Seveso III directive shall be addressed. The Company is aware of the increased risk of industrial accident of the facility and already has initiated a number of activities to address it. A number of studies will be completed, that include:

- HAZID (hazard identification) analysis - completed;
- HAZOP (hazard operability study) analysis – in progress;
- QRA (quantitative risk assessment) analysis - completed;
- FERA (fire and explosion risk) analysis;
- Preparation of the assumptions to ESD system describing the feature of all instrument loops dedicated to the normal operating control, to the monitoring and to the safety management;
- Calculations and modelling of explosive mixtures dispersion and classification of zones (1st and 2nd) as per ATEX directive;
- Preparation of Operating and Start-up Manual;
- Preparation of the Major-accident prevention policy;
- Preparation of the Safety report;
- Preparation of the Internal emergency plan.

Ultimately, prior commencement of the operations the facility will need to achieve all necessary approvals.

The health and safety as well as social issues will also be managed by the ESMS, which core elements will be developed prior to commencement of the construction works. The ESMS will secure that the national and EU law as well as good international practice and standards will apply to all employees, subcontractors and suppliers with respect to health and safety conditions, training, medical examination, personal protective equipment etc., at all stages of the Project development. The Company has already made commitment to follow good international health, safety and social standards, in particular by following the Performance Requirement 2 of the EBRD Environmental and Social Policy (2014).

The Company respects the rights of Project stakeholders to submit grievances, comments or concerns. The appropriate grievance mechanism is implemented at Grupa Azoty Polyolefins S.A. as a procedure of the Company's integrated management system and will be maintained in case of the Project. The two – way communication includes the following:

- written confirmation of receipt of a complaint;
- information about the Project published on a separate tab of the website of Grupa Azoty Polyolefins S.A. along with a link to obtain a notification form (http://polyolefins.com.pl/index.php/pl/kontakt/);
- information about the Project, including a general description of the Project, stages of its implementation and information on the complaint submission mechanism published and made available in the form of a brochure by Grupa Azoty Polyolefins S.A

WHAT ARE THE ENVIRONMENTAL AND SOCIAL BENEFITS OF THE PROJECT?

In Police town, the labour market is mainly based on GAP. In the scenario of a chemical industry breakdown appears, unemployment range may increase. The investment's influence may be seen as an opportunity for the commune development, increase the commune incomes as well as increase the employment opportunities, improving the living standard, migration reduction from this part of Poland, support local field studies, higher education and vocational education, increase of polish economic importance on the international arena, in addition, revenues to the municipal budget will increase due to local taxes, development of local enterprises, new industries will appear, social expenses will be reduced, new infrastructure will be built, and state revenues will increase due to various taxes (PIT, CIT, VAT, etc.). However, the emission of pollutants and potential impact on the health of residents and increased level of risk related to industrial failures, may be the negative impacts.

It should be stressed that the new investment will be implemented on the existing premises of the Police industrial chemical plant. Thanks to this and the application of the best implementation practices as well as the recognition of existing conditions, this impact will be limited to the necessary minimum i.e. avoiding such pressure on the environment (with measurable scale) in other parts of the country that are deprived of it. Such a solution will not significantly increase the impact of existing installations and is consistent with the principle of sustainable development.

Based on the available documents and assessment by the independent consultant (Ramboll Environ Poland) the implementation of the project will result with the following benefits for the society and environment:

Society:

- the opportunity for the commune development;
- increase the commune incomes;
- increase the employment opportunities;
- improving the living standard;
- reduction of migration from this part of Poland;
- support local field studies, higher education and vocational education;
- increase the importance of polish economic on the international arena;
- local enterprises will have a chance to develop;
- new industries, infrastructure will appear;
- expansion and protection of the commune;

Environment:

- thanks to the implementing project on the existing premises of the Police industrial chemical plant, impact will be limited to the necessary minimum i.e. avoiding such pressure on the environment (with measurable scale)- such a solution will not significantly increase the impact of existing installations and is consistent with the principle of sustainable development;
- hydrogen from the PDH plant will allow an increase in ammonia production and a reduction in the natural gas consumption, which in turn will be converted into a reduction in CO2 emissions to the atmosphere by 59,110 t/a.
- CO2 emission from the facility will amount in total 220,247 t/a, which corresponds to 0.364 t/t of propylene. The selected propylene production technology allows for CO2 emission lower by approx. 13,622 t/a as compared to alternative technologies;
- the reduction of NOX emission by 25% due to the use of platinum catalyst;
- possibility to totally mitigate the SOX emission;

- chosen technology will contribute to a 178% reduction in wastewater production than such technology as cracking;
- in technological steam production system, a turbine that produces a low-pressure steam with simultaneous production of electricity, is provided. Preliminary design calculations show that the primary ratio energy saving exceeds the level required for high efficiency cogeneration (10%). Additionally, the overall efficiency of the system is higher than the efficiency limit and all of the generated electricity in the turbogenerator will be counted as electricity generated in high-efficiency cogeneration (approx. 53 thousand MWh/ year).

PROJECT COMPLIANCE WITH EU AND LENDERS REQUIREMENTS

The adopted priorities, strategic goals and activities are consistent with the principle of sustainable development binding in the European Union, and their implementation will have a decisive impact on the pace and quality of changes taking place in the Police commune. The goal of the Development Strategy for the Police Commune up to 2020 is undertaking investment and non-investment ventures aimed at economic and social recovery, including increasing the investment and tourist attractiveness of the Police Commune.

Since the products of the planned units will be propylene and polypropylene the Project is defined as an installation in the chemical industry for the production, using chemical or biological processes, of organic chemicals the installations can cause significant pollution of individual natural elements or the environment as a whole (Journal of Laws 2014, item 1169).

In accordance with the regulations, installations requiring an integrated permit should use solutions considered to be the best available techniques (BAT) or to achieve similar production parameters.

The adopted technological solutions are in line with BAT requirements, as outlined in currently binding BREF (BAT reference document).

The Project has been assessed by an independent consultant (Ramboll Environ Poland Sp. z o.o.) as for its compliance with the national and EU regulations and the environmental and social policy (ESP) of the European Bank for Reconstruction and Development (2014). The Project has been assessed as compliant with the above and the Company as committed and capable to meet the lenders requirements. Actions necessary to secure future Project development in line with the Lenders requirements have been summarized in a stand-alone Environmental and Social Action Plan which will be implemented by the Company.

The Project will be subject to ongoing monitoring by the regional and national environmental authorities and by the Lenders.

ADDITIONAL INFORMATION AND PUBLIC CONSULTATIONS

Although, in Polish law, in addition to the general rules of the Constitution, there are no specific provisions regarding social consultations and the role of the investor as a dialogue between the community and the investor, the Company has undertaken numerous actions

in order to keep the stakeholders informed about the planned project. The administrative stakeholders (internal and external) were involved in the communication process.

Providing information about the project enables interested parties to get to know and understand the potential risks, environmental and social impacts associated with the Project, as well as the opportunities offered.

Aims of such communication are as follows:

- providing the local community with information about the schedule and scope of planned work, along with the method of collecting opinions about them;
- publishing the Company's commitment to applying best practices in the field of environmental protection and work safety of employees and subcontractors;
- publishing a mechanism for submitting comments and complaints, enabling the collection of negative opinions and taking corrective actions.

In order to ensure transparency and access to information on the Project's implementation in all its phases, including preparation, construction and operation of the installation, Grupa Azoty Polyolefins S.A. maintains a website on which all, project relevant information is posted. The website (http://polyolefins.com.pl) is updated on regular basis and all information is available both in Polish and English. In the nearest future the website will contain documents prepared by consultants for the purpose of the environmental impact assessment and project financing, i.e.:

- Non-technical summary;
- Stakeholders Engagement Plan;
- Environmental and Social Action Plan;
- Grievance form;
- Environmental Impact Assessment Report with selected appendixes;
- Supplementary report on the investment impact on Natura 2000 sites;
- Environmental decision.

Public consultations regarding the planned undertaking, including the possibility of expanding the scope of propylene production to include also polypropylene, included both meetings with representatives of the authorities and the society directly interested in the impact of the investment:

- On 07/14/2016, an investor's meeting with the Marshal of the West Pomeranian Region took place, aimed at presenting the planned investment and discussing the most important issues related to the potential impact of the investment on economic, developmental and environmental conditions.
- On 15/12/2016, a meeting was held with the management of the Regional Directorate for Environmental Protection. During the meeting, the applied approach to the assessment of investment impact on the environment and its preliminary results was presented.
- On 16/12/2016 a meeting took place at the office of the Maritime Office in Szczecin, during which issues related to the deepening of the Police channel were discussed.
- On 16/12/2016 a local authorities of the city and the commune took place. The purpose of the meeting was to present the planned investment to the local authorities and the potential benefits it can bring for the region.
- On 27/01/2017 a consultation meeting was held at the seat of the District Council in Police. The purpose of the meeting was to present the project of a new investment in terms of benefits, but also potential inconveniences for residents. Presented were the ways of effective minimization of possible negative effects of impacts that will be ensured both at the stage of investment implementation and operation. During the discussion, participants were introduced to all technical, legal and environmental aspects of the planned investment.

- On 27/02/2017 a consultation meeting was held in Kołbaskowo. The aim of the meeting was also to present the project of the new investment in terms of benefits, but also potential inconveniences for residents. The participants were presented with technical, legal and environmental aspects of the planned investment.
- On 12/06/2017 an information meeting was held at the Cultural Center in Police, during which the purpose, conditions and investment assumptions, expected benefits for the region and environmental aspects of the planned investment, onerousness that may occur during its implementation and during the operation period were presented.
- On 23/01/2018, a meeting with the Regional Director for Environmental Protection in Szczecin took place. The meeting discussed formal issues related to obtaining a decision about environmental conditions for the updated project, i.e. the construction of the Polimery Police complex.
- On December 21, 2018 a meeting with Councilors of the Dobra Commune Council was held. At the meeting the Mayor of Dobra Commune, Teresa Dera was also present. PDH Polska S.A. was represented by the President of the Management Board, Andrzej Niewiński and the Vice President of the Management Board, Marek Czyż. Multiconsult company was represented by Artur Pudełko. During the meeting the concept of the project, time frames and the expected social and environmental effects for the local community were presented.
- According to law, the transmission of the meeting was registered and available in the Public Information Bulletin at https://www.dobraszczecinska.pl/site/index.php?option=com_content&view=article&id=6481:transmisje-sesji-rady-gminy-dobra&catid=480&Itemid=464;
- On January 22, 2019 a meeting with the City Council in Police was organized. Apart from councilors, the Mayor of the Police Commune, Władysław Diakun, the First Police Deputy Mayor, Jakub Pisański and the Second Police Deputy Mayor, Maciej Greinert were present. PDH Polska S.A. was represented by Vice President of the Board, Władysław Madej and Project Implementation Director, Marcin Palczyński. A representative of Multiconsult was also present at the meeting. The transmission of the meeting was registered and available at: https://www.youtube.com/watch?v=698RlEZTdEA;
- On January 25, 2019 PDH Polska S.A. organized a meeting with the residents of the Police commune at the Municipal Cultural Center in Police. PDH Polska S.A. was represented by the President of the Management Board, Andrzej Niewiński and the Vice President of the Management Board, Marek Czyż. Additionally, Anna Tarocińska, a member of the Management Board of Grupa Azoty Zakłady Chemiczne Police S.A. was present. The meeting was attended by residents and representatives of local media.
- On January 30, 2019 at the County Office, a meeting of the Police District Council took place. The Police County Executive, Andrzej Bednarek was present. PDH Polska S.A. was represented by Vice President of the Board, Władysław Madej. Additionally, Anna Tarocińska, a member of the Management Board of Grupa Azoty Zakłady Chemiczne Police S.A. was present. The transmission of the meeting was registered and available at: https://www.youtube.com/watch?v=xyJsz_9NWoE&feature=youtu.be;
- In June 2019, PDHP organized a meeting for key local authorities (e.g. the Mayor of Police Commune, District Police Headquarters, Voivodeship and District Fire Brigade and other representatives of the project stakeholders). The main purpose of the meeting was to officially present the EPC contractor and the status of the Project PDHP. Moreover, the topic of forms and possibilities of further stakeholder engagement was discussed at the meeting.

For further information related to Project development please contact:

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